Performance and Results-based Management of IT and NSS Investments

Measures of Effectiveness (MOEs) and their Measure

Leonard Sadauskas
DASD(DCIO) CP/O
Leonard.Sadauskas.ctr@osd.mil

Scope and Objective

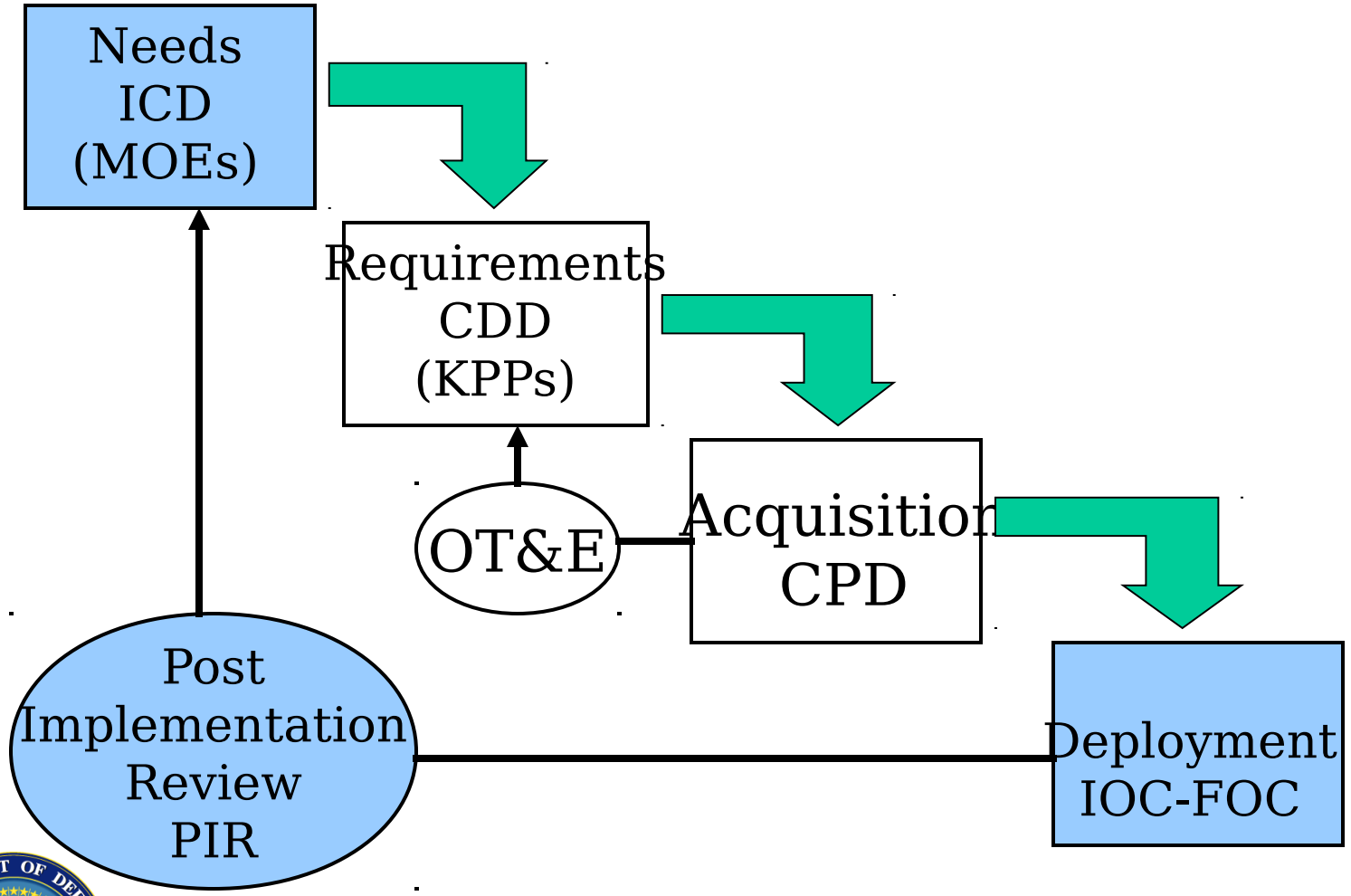
- **This presentation deals with the following aspects of performance and results-based management of IT and National Security Systems (NSS)**
  - Prescribing IT outcomes performance measures; defined as measures of effectiveness, MOEs
  - Measuring the MOEs
- **The scope is represented by the blue shapes in the following IT/NSS investment life-cycle chart**
- **The objective is to answer who, what, why and when for MOEs and their measure**
- **For additional MOE/PIR discussion go to: http://acc.dau.mil/cca**

Performance and Results-based Management

Sec 5123 of the Clinger-Cohen Act:

- Establish goals for improving Agency efficiency and effectiveness
- Provide annual status of goals to Congress
- Prescribe IT outcomes performance measures
- Benchmark against comparable processes and organizations
- Measure how well the outcomes support programs of the Agency
- Meet fundamental criteria:
  - Core/priority mission functions for performance by Government
  - No alternative private sector or government source
- Conduct BPR/Change management before investing in IT/NSS
- Ensure information assurance

IT/NSS Investment Life Cycle



Measure of Effectiveness (MOE) Defined

- ***The measure of effectiveness*** is the criterion by which solutions will be judged- proposed solutions, solutions under test, or solutions in being

- ***MOEs are…*** standards against which the capability of a solution to meet the needs of a problem may be judged. The standards are specific properties that any potential solution must exhibit to some extent. MOEs are independent of any solution and do not specify performance or criteria.

- ***MOEs are a measure of operational success*** that must be closely related to the objective of the mission or operation being evaluated. For example, the number of enemy submarines sunk or enemy tanks destroyed may be satisfactory MOEs if the objective is to destroy such weapons systems. … A meaningful MOE must be quantifiable and a measure to what degree the real objective is achieved. (The Defense Acquisition University in its 10th edition Glossary)

Characteristics of MOEs

- **Characteristics of MOEs are that they are:**
  - Quantifiable and Measurable
  - Characterize the more important aspects of the expected outcomes
  - Reported to the Component CIO and CFO
  - Show *linkage* from systems to missions they support
  - Directly reflect stakeholder/user needs

- **Typical MOEs measure one or more of the following:**
  - Conformance
  - Efficiency
  - Effectiveness
  - Cost for Return-on-Investment validation
  - Reaction for user satisfaction with the outcome

Other Performance Measures (not MOEs)

- **Acquisition Performance Measures**
  - Earned Value
  - Technical Performance Measures
  - Acquisition Program Baseline
- **Development Test and Evaluation Measures**
  - Measure conformance to contract
- **Operational Test and Evaluation Measures Title 10 USC Section 2399**
  - Collects and measures system effectiveness and suitability
  - Actual or simulated employment, by typical users, of a system under realistic operational conditions.
  - Note: May address MOEs but not in actual operational environment
- **Follow-on OT&E**
  - Verification of correction of deficiencies discovered earlier
  - Tactics development
  - OT&E of block upgrades to the system
  - Completion of OT&E of system support materiel (pubs, equipment, etc.)
  - OT&E against emerging threat
  - Completion of deferred OT&E (other climates, unique modes of operation, etc.)

What Is a PIR?

- **A benefits analysis of an investment or acquired system, operating in its intended environment, using data collected from various sources to answer the question:**

Did we get what we needed, and if not what to do about it?

- **A measurement of the measures of effectiveness (MOEs) assigned to a materiel solution by the capability/mission owner**

Why do PIR?

- **An essential element for decision making**
  - Balanced Scorecard
  - Portfolio Management
  - Business Enterprise Architecture Domain
  - Functional Capability Board
  - Enterprise Strategic Planning
- **Essential feed-back loop for continuous improvement of the Joint Capabilities Integration and Development System (JCIDS)**
- **Good systems engineering practice in an incremental capability deployment environment**

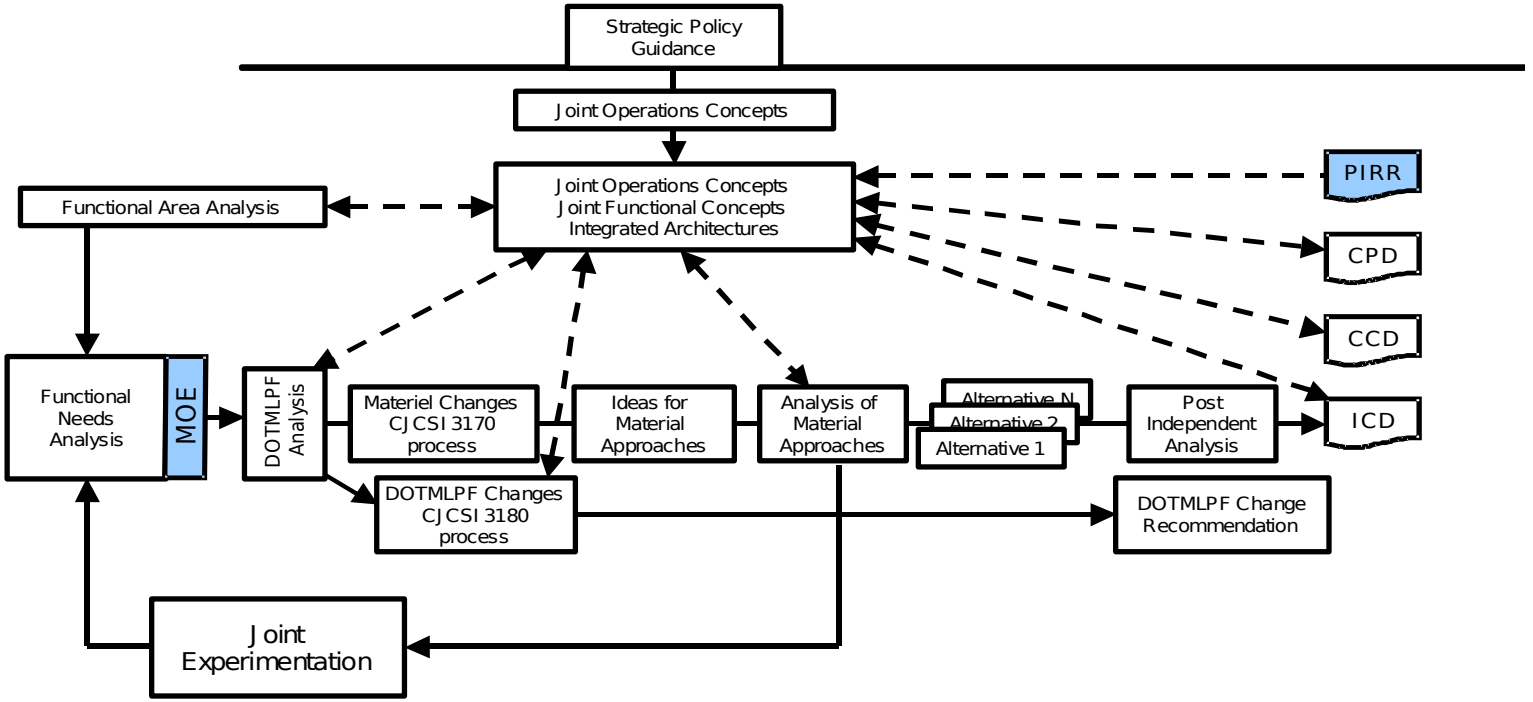
When is MOE and PIR Information Due?

- **MOEs are in the ICD (Responsibility of Sponsor/Mission Owner)**
- **If the ICD does not contain MOEs, the Milestone Decision Authority (MDA)will require MOEs at the first Milestone.**
  - Agreement on the format, chop cycle and signature will be made at the time of, or before, the Milestone.
  - MOE determination of an ACAT IT/NSS investment may require the submission and acceptance by the MDA of a Performance Measures Development Plan before start of the MOE determination process
- **PIR planning starts with the articulation of the MOEs**
  - Feasibility, cost and other considerations
- **A PIR Plan is due at Milestone C or equivalent**
  - Produced by Sponsor and Program Manager
  - Describes what is to be measured and how the measures relate to the MOEs
  - Identifies resources and schedule

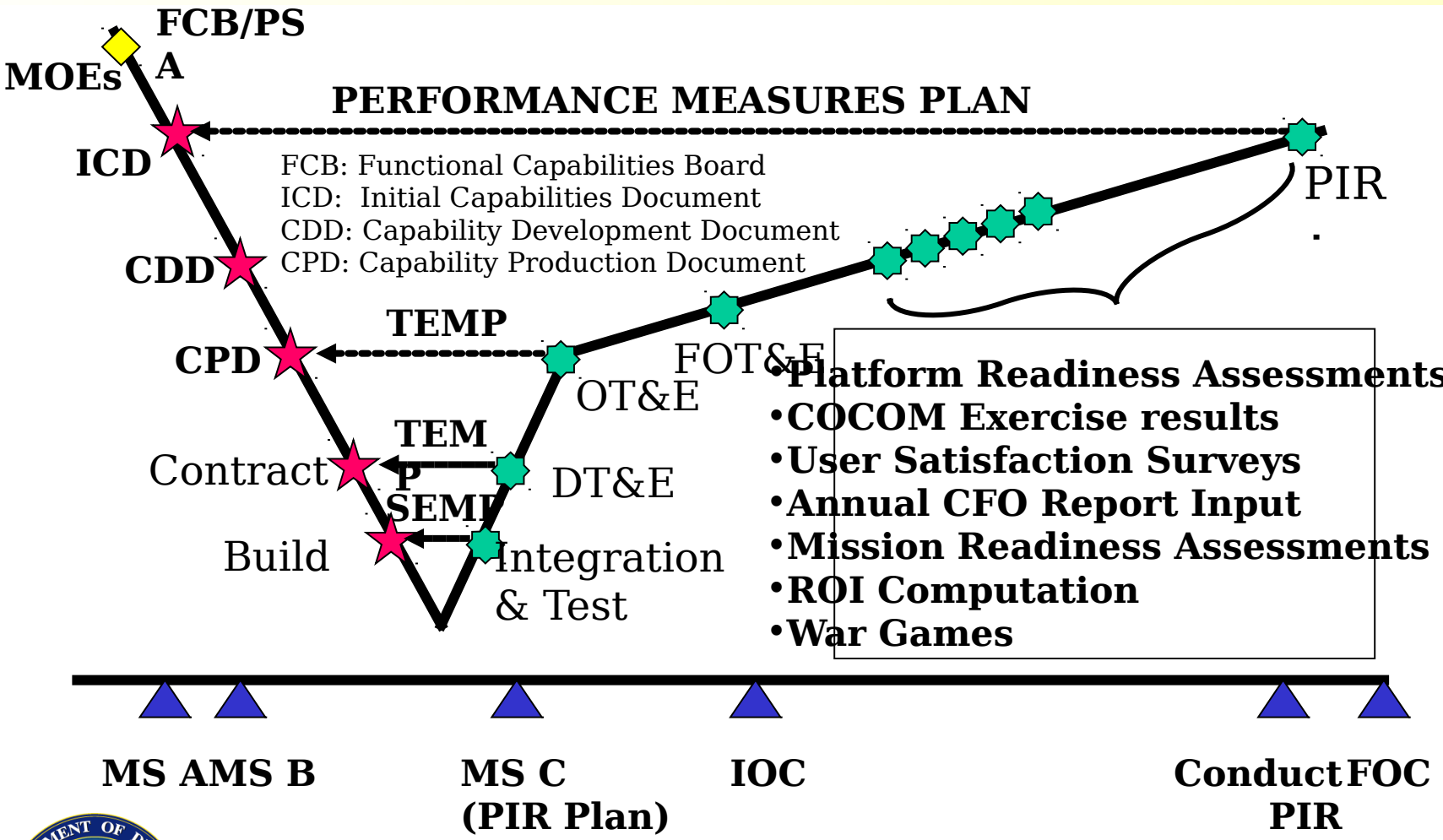
MOEs and PIR in the Life-cycle

- **The following slides provide two views of MOEs and PIR**
  - **In the JCIDS life-cycle**
    - Note that the MOEs are the product of the Functional Needs Analysis that is refined during the Analysis of Materiel Approaches and may employ Joint Experimentation to help identify the values that can be expected from a particular materiel approach
  - **In the classic verification V depiction of the acquisition life-cycle**
    - SEMP is the plan for verifying build specifications
    - TEMP is the plan for verifying contract specifications
    - TEMP is the plan for verifying the KPPs in the CPD
    - A Performance Measures Plan or equivalent is used to verify the ICD

MOEs and PIR in the J CIDS Analysis Process



MOEs and PIR in Investment Life Cycle



Statutory Requirement for MOE/PIR

- **CCA Sec. 5113. Director OMB**
  - shall encourage use of Performance-based Results-based Management
  - Shall evaluate the agency practices
  - Shall conduct budget reviews to ascertain the efficiency and effectiveness of the IT in improving the performance of the executive agencies and the accomplishment of the missions of the executive agency
  - Shall enforce accountability through budget recommendations, reducing/adjusting apportionments and other administrative controls

- **CCA Sec. 5123. Executive Agency**
  - (3) Ensure performance measurements are prescribed … and measure how well the IT/NSS supports DoD programs

- **CCA Sec. 5141. Applicability of CCA to NSS**
  - Sec 5123 (above), and 5126 (Accountability) apply to NSS

Statutory Requirement for MOEs and PIR (cont)

- **CCA Section 5126 Accountability** The head of each executive agency, in consultation with the Chief Information Officer and the Chief Financial Officer of that executive agency
  - (1) ensure that the accounting, financial, and asset management systems and other information systems of the executive agency are designed, developed, maintained, and used effectively to provide financial or program performance data for financial statements of the executive agency;
  - (2) ensure that financial and related program performance data are provided on a reliable, consistent, and timely basis to executive agency financial management systems; and
  - (3) ensure that financial statements support -

    (A) assessments and revisions of mission-related processes and administrative processes of the executive agency; and

    (B) performance measurement of the performance in the case of investments made by the agency in information systems.

Statutory Requirement for MOEs and PIR (cont)

- **U.S. Code Title 31, Sec. 1115. Performance Plans**
  - Establish performance goals to define the level of performance to be achieved by a program activity
  - Express goals in objective, quantifiable and measurable form unless authorized to use alternative form
  - Describe operational processes, skills, technology, information or other resource required to meet the goal
  - Establish performance indicators to be used in measuring or assessing the relevant outputs, service levels, and outcomes of each program activity
  - Provide a basis for comparing actual program results with the established performance goals
  - Describe the means to be used to verify and validate measured values

Regulatory Requirement for MOE/PIR

- **JCIDS Manual assigns the respective FCBs and Domains responsibility for articulating the MOEs in the analysis of material approaches (AMA) of the ICD**
- **DODI 5000.2**
  - Table E3.T1 cites information required for the Full-Rate Production decision, including the Post-Deployment Performance Review citing GPRA and 40USC 11313 (not recognized)
  - Table E4.T1 establish outcome-based performance measures linked to strategic goals. No mention of a PIR
- **OMB Circular A-130 under "Evaluation"**
  - Conduct post-implementation reviews of IT to validate estimated benefits and costs
- **OMB Circular A-11 Exhibit 300, Table 1C requires submission of:**
  - Performance Goals and Measures. Strategic goal(s) supported; Existing baseline; Planned and actual improvements and performance metrics

Critical Success Factors

- **Articulation of MOEs by the Sponsor/Mission Owner prior to MS A**
- **MOEs guide development of requirements in the CDD**
- **MOEs guide development of incentive strategy for contracts**
- **Consideration is given to cost of measuring MOEs**
- **MOEs assist in the interpretation of OT&E results**
- **PIR results guide investment decision making**
- **PIR results influence future blocks of system acquisition**
- **MOEs and PIR results reflected in the OMB Exhibit 300**
- **MOEs and PIR results published by Agency CFO**
- **Reconciliation of MOEs and PIR results in opportunity to improve the functional solutions analysis of the JCIDS**